

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-16 are currently pending in this application. By this amendment, Applicant has amended Claims 1, 9 and 12-14.

Claim 1 was amended to remove the word “material” and replace it with the word “arrangement.” Support for this amendment is found in the specification at page 15, lines 16-20.

Claim 9 was amended to remove the word “material” and replace it with the word “arrangement.” Support for this amendment is found in the specification at page 25, lines 13-15. Claims 12-14 were amended to make minor grammatical changes.

The title of the invention was amended to be clearly indicative of the invention claimed. Accordingly, the Applicant requests the withdrawal of the objection to the title.

In the outstanding Office Action, Claims 1-5, 7, 9, 12-13 and 15 were rejected under 35 USC §103(a) as being unpatentable over Iwama et al. (JP 11-024507) in view of Todome (U.S. Patent No. 5,619,310); Claims 2 and 10 were rejected under 35 USC §103(a) as being unpatentable over Iwama et al. in view of Todome and further in view of Kayahara (JP2001-19421A); and Claims 8 and 16 were rejected under 35 USC §103(a) as being unpatentable over Iwama et al. in view of Todome and further in view of Kawagoe (JP2001-19422a). However, Claims 6 and 14 were indicated as including allowable subject matter if rewritten in independent form. In the outstanding Office Action, the Examiner also objected to the title of the invention.

Claim 1 of the present application, as amended, is directed to an image forming apparatus having a rotating belt for forming an image that has a Young’s modulus. The image

forming apparatus also has an arrangement that is attached to a portion along the belt, and the arrangement has a Young's modulus that is smaller than the Young's modulus of the belt.

Claim 9 in the present application, as amended, is directed to an image forming device that includes a rotating belt for conveying a medium on which an image is directly transferred. The rotating belt has a Young's modulus. There is also an arrangement attached to a portion along the rotating belt. The arrangement has a Young's modulus that is smaller than the Young's modulus of the rotating belt.

The relationship defined in Claims 1 and 9 between the Young's modulus of the rotating belt and the arrangement is very important. Previous image forming apparatuses suffered from the problem of a deformation in the rotating belt. This is illustrated by Figs. 14 and 15 of the present application. The deformation caused a variety of problems. These problems included, but are not limited to, inaccurate detection timing, or detection timing not being carried out, malfunctions in driving the belt, inaccurate readings of the speed of the belt, and causing a color shift. By keeping the components of the image forming apparatus within the above mentioned Young's modulus relationship, the above problems can be solved.

Turning now to the rejection of independent Claims 1 and 9 as being obvious over Iwama et al. in view of Todome, Applicant respectfully submits that the references Iwama et al. or Todome, when considered alone or in proper combination, fail to disclose all claimed limitations of independent Claims 1 and 9.

The Official Action indicates that Iwama et al. does not teach the Young's modulus of the arrangement or the Young's modulus of the rotating belt. Todome is cited to supplement this deficiency.

Todome discusses the Young's modulus of a rotating belt. Todome discusses testing of an image forming apparatus where the Young's modulus of the rotating belt was allowed

to vary over the range of 100 to 500 kg/mm². Todome discloses that deformations were not produced on the belt when the Young's modulus was greater than 200 kg/mm². Todome further tested the image forming apparatus where the width of the rotating belt was allowed to vary over the range of 10 mm to 500 mm. Todome discloses that the one-sided moving direction of the belt is controllable when the width of the belt is more than 50mm. Todome does not discuss the Young's modulus of an arrangement attached to a portion of the belt, or providing an arrangement having a Young's modulus that is smaller than a Young's modulus of the belt. Todome does not disclose or suggest solving the problem of deformation in the rotating belt by utilizing the relationship of the Young's modulus of the rotating belt being greater than the Young's modulus of the arrangement.

Applicant respectfully submits that it would not be obvious for one of ordinary skill in the art, at the time the invention was made, to select the Young's modulus of the scale to be less than the Young's modulus of the rotating belt. The Examiner argues that the general conditions of Claims 1 and 9 were disclosed in the prior art. The advance in the art of the present invention is not merely discovering the optimum range for the relationship between the Young's modulus for the rotating belt and the arrangement. The advance in the art is the discovery of the relationship between the Young's modulus of the rotating belt and that of the arrangement, which the operation of the image forming apparatus. This relationship is not disclosed or suggested by the cited reference either taken singularly or in combination, and therefore the general conditions of the claims are not disclosed in the prior art.

The Examiner cites In re Aller, 105 U.S.P.Q. 233 (hereinafter Aller), for support that the present invention is obvious. Applicant respectfully submits that Aller is not applicable to the facts of this application. In Aller, the appellants tried to patent a process that was identical with that of the prior art, except that the appellant's claims specified lower temperatures and higher sulphuric acid concentrations. All the factors or elements that were

part of the appellants claims were disclosed by the prior art. These factors include the specific chemicals, and that the process was dependent upon temperature and acidic concentration. The court determined that it would be within the ability of one skilled in the art to determine the optimal values for the temperature and the acidic concentration.

Applicant respectfully submits that the facts of the present application are materially different. The combination of Iwama et al. and Tonome do not disclose all the elements or factors that are apart of independent Claims 1 and 9. The Young's modulus of the arrangement is not disclosed in the prior art as being a factor in improving the operation of an image formation apparatus. So unlike Aller, the prior art in this case does not create a situation where the Applicant has merely determined an optimal range. Applicant in this situation has discovered a new element and included it in independent Claims 1 and 9.

Applicant respectfully submits that Claims 1 and 9 are patentably distinguishable over Iwama et al. in view of Todome because this combination of references do not teach or suggest every element claimed. Applicant also respectfully submits that dependent claims 2-8 and 10-16 be allowed with the independent claims.

Turning now to Claims 4 and 12 the Examiner has relied on Iwama et al. to disclose a scale that includes a reflecting part and a non-reflecting part. Iwama et al. discloses that a "device is provided with a detector for reading the scale." Iwama et al. does not disclose a reflecting/non-reflecting setup for reading the scale.

The Examiner stated that it is known in the art to use a magnetic scale with a rotating belt. The Examiner also stated that a magnetic scale would have been obvious because Applicant has not stated a reflective scale solves any stated problem and that the invention would perform equally well with the magnetic scale. The Examiner has cited no authority for these conclusions.

Turning now to the rejection of dependent Claims 2 and 10, the Examiner has stated that Claims 2 and 10 are obvious over Iwama et al. in view of Todome and further in view of Kayahara. Applicant respectfully submits that dependent Claims 2 and 10 should be allowed with independent Claims 1 and 9.

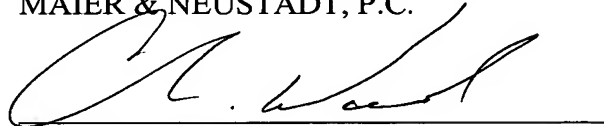
Turning now to the rejection of dependent Claims 8 and 16, the Examiner has stated that Claims 8 and 16 are obvious over Iwama et al. in view of Todome and further in view of Kawagoe. Applicant respectfully submits that dependent Claims 8 and 16 should be allowed with independent Claims 1 and 9.

Based on the above discussion, it is respectfully submitted that all claims in the above noted application are patentably distinguishable over the applied references.

Consequently, in view of the foregoing remarks, no further issues are believed to be outstanding and the present application should be considered in clear condition for formal allowance. A quick and favorable action is therefore respectfully requested.

Respectfully submitted,

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